Mar. 3, 1925. **1,528,439**

G. A. LEIMAN

DUST COLLECTOR FOR POLISHING MACHINES

Filed Oct. 23, 1922 2 Sheets-Sheet 1

Fig. 1.

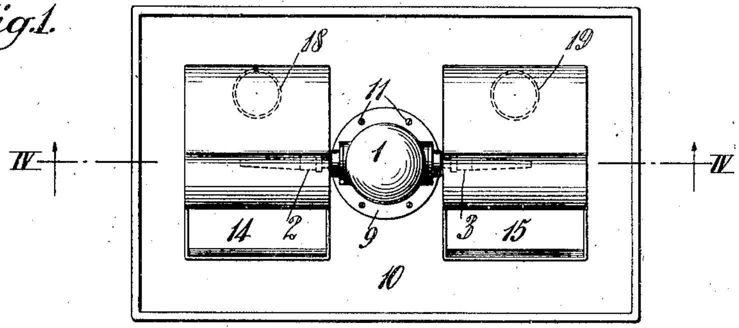
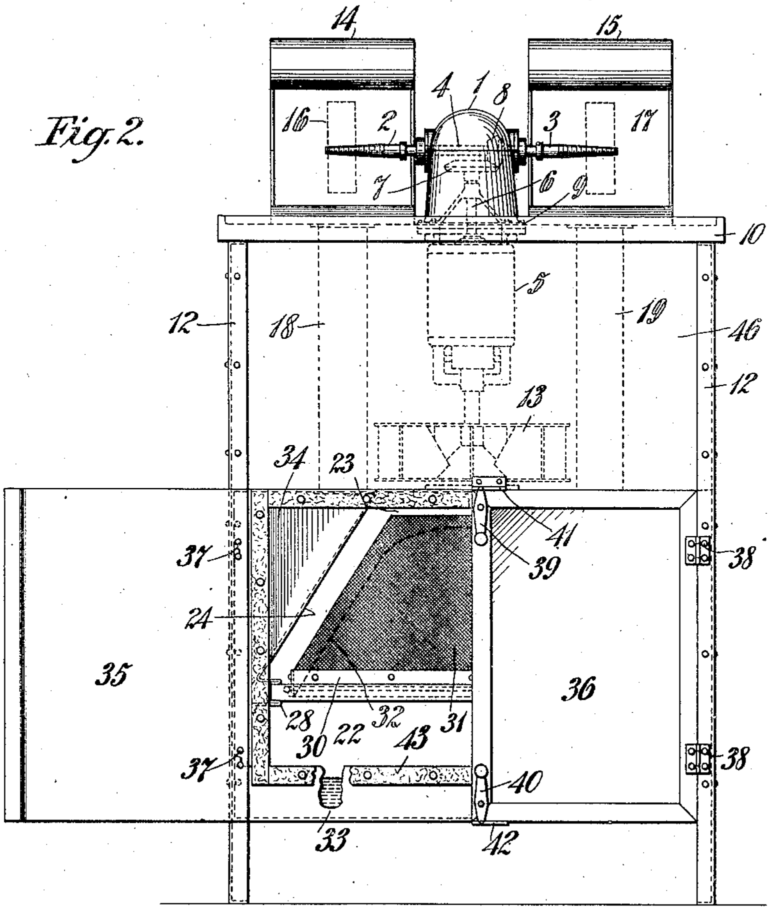


Fig. 2.



INVENTOR

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by

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Mar. 3, 1925.

1,528,439

G. A. LEIMAN

DUST COLLECTOR FOR POLISHING MACHINES

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2 Sheets-Sheet 2

Fig.4.

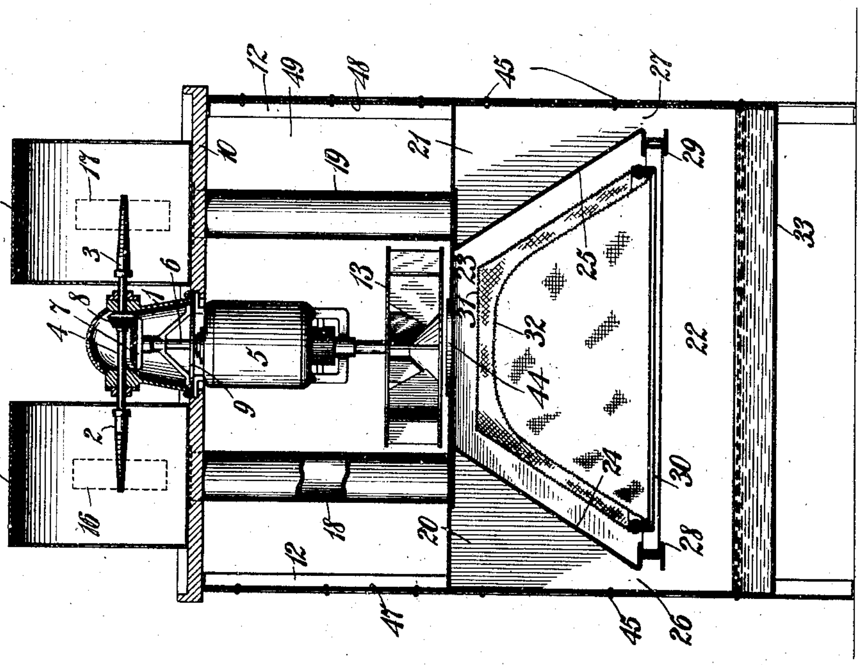
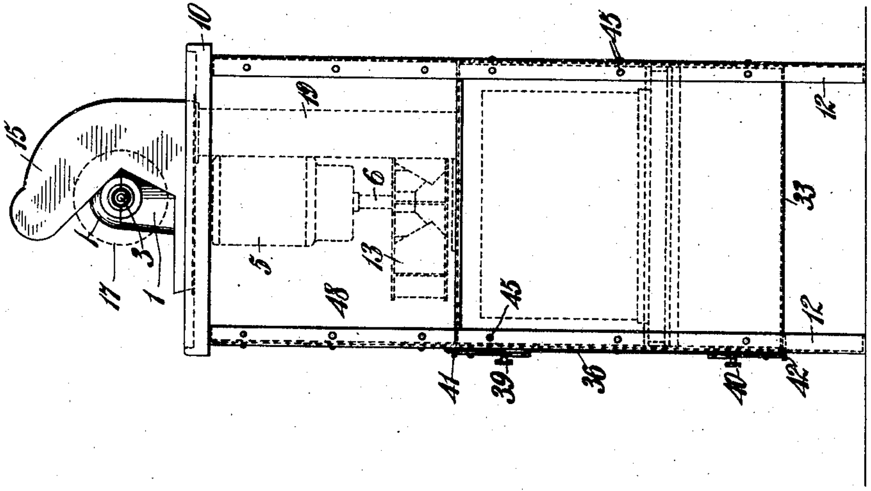


Fig.3.



INVENTOR

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Patented Mar. 3, 1925. **1,528,439**

UNITED STATES PATENT OFFICE.

GUSTAVE A. LEIMAN, OF NEW YORK, N. Y., ASSIGNOR TO LEIMAN BROS., OF NEW YORK, N. Y., A COPARTNERSHIP COMPOSED OF WILLIAM H. LEIMAN, GEORGE W. LEIMAN, GUSTAVE A. LEIMAN, EDWARD C. LEIMAN, AND JOHN LEIMAN.

DUST COLLECTOR FOR POLISHING MACHINES.

Application filed October 28, 1922. Serial No. 597,625.

To all whom it may concern:

Be it known that I, Gustave A. Leiman, a citizen of the United States, and resident of the borough of the Bronx, in the city and State of New York, have invented a new and useful Improvement in Dust Collectors for Polishing Machines, of which the following is a specification.

This invention relates to an improvement in dust collectors for polishing machines, and has for its object to provide a novel means for collecting the dust drawn into the machine.

Another object is to provide a machine including a partial vacuum dust collecting chamber having partitions angularly inclined and arranged to form upper compartments having restricted outlets, a compartment intermediate the upper compartments, and a lower compartment, said intermediate compartment having a strainer for the dust laden air removably secured therein.

Another object is to provide a machine including a partial vacuum dust collecting chamber, passages connecting the hoods with the vacuum chamber, and an exhaust opening at the top of the chamber between the passages.

Another object is to provide novel means in the mounting of the motor between the exhaust fan and the spindles for driving both the fan and spindles.

Another object is to provide certain improvements in the form, construction and arrangement of the several parts, whereby the above named and other objects may be effectively attained.

A practical embodiment of my invention is represented in the accompanying drawings, in which—

Fig. 1 represents a plan view of the machine.

Fig. 2 represents a front elevation of the same, one of the doors of the dust collecting chamber being shown in its open position, and other portions being broken away to show parts within.

Fig. 3 represents an end elevation of the machine, and

Fig. 4 represents a vertical central section taken in the plane of the line IV—IV of Fig. 1, looking in the direction of the arrows.

The polishing head is denoted by 1, and is shown as provided with two oppositely disposed spindles 2, 3, arranged at the ends of a horizontal shaft 4. This shaft 4 is journaled in the head 1 and receives its motion from a motor 5 having a vertically disposed shaft 6 upon which is secured a bevel gear 7 arranged to mesh with a bevel gear 8 fast on the spindle shaft 4.

The motor 5 is suspended from a plate 9 which is fixed to the polishing head and secured to the table top 10 by means of screws 11, which table top is supported on legs 12. An exhaust fan 13 is mounted on the lower end of the motor shaft 6.

Hoods 14, 15, enclose brushes 16, 17, shown in dotted outline in the several figures, which hoods have passages formed by pipes leading downwardly through the table 10 to the top of a dust receiving chamber. This chamber comprises two upper compartments denoted by 20, 21, a lower compartment 22, and a compartment 23 interposed between the upper compartments 20, 21. The compartments 20, 21 and 23 are formed by partitions 24, 25, angularly inclined, which partitions extend downwardly from the top of the chamber and form restricted outlets 26, 27 for directing the passage of the dust laden air into the compartment 22. The compartments 20 and 21 are in direct communication with the hoods through the pipes 18, 19, respectively. The lower end of the partitions 24, 25, are provided with oppositely disposed channels 28, 29, which serve as guide rails and support for a frame 30 upon which is fixed an inverted wire basket 31 of fine mesh. A flexible strainer 32 of muslin, or other similar material, is removably secured within the frame 30. The basket 31 and strainer 32 are arranged to extend upwardly into the intermediate compartment 23. The lower compartment 22 is provided with a tray 33 in which may be placed a liquid to arrest certain of the matter entering the compartment 22.

To remove the frame and basket from their positions in the compartment 23, the chamber has an opening 34 which is closed by doors 35, 36, hinged to the legs 12 at 37, 38, which doors are locked in a closed position by means of fastening devices 39, 40, arranged to coact with stops 41, 42, carried by the chamber. The peripheral walls of the opening 34 are provided with a binding of felt, or other similar material 43, which coacts with the doors, when closed, to present a substantially air tight closure.

Air is exhausted from the chamber with its several compartments through an opening 44 in the top of the compartment 23 immediately beneath the exhaust fan 13. The chamber is positioned within the legs 12 by rivets, or suitable fastening means 45, a distance below the table top to form a cabinet therebetween, which cabinet is constructed by a front wall 46 and side walls 47, 48, leaving an outlet 49 at the rear. These front and side walls enclose and conceal the exhaust fan 13 and pipes 18, 19, and cause the air withdrawn from the chamber through the opening 44 to be exhausted at the back of the machine and away from the operator.

In operation: By reason of the rotation of the fan 13, air will be withdrawn from the dust collecting chamber through the opening 44, thereby causing a partial vacuum in the several compartments, which vacuum will be relieved by drawing or sucking air and dust downwardly from the hoods 14, 15, through pipes 18, 19, into compartments 20, 21, through restricted openings 26, 27, thence into the lower compartment 22 and upwardly into the compartment 23. The air will, of course, pass through the strainer 32 and basket 31 upwardly through the opening 44 into the cabinet and be exhausted through the outlet 49 at the rear, while the dust will be arrested by the strainer 32 and finally fall by gravity into the liquid in the tray 23. As the dust laden air passes through the restricted openings 26, 27, into the compartment 32, a portion of the dust may be caused by gravity to fall in the liquid in the tray. To clean the basket and strainer, the frame may be withdrawn from its position in the compartment 23 through the opening 34 and the strainer removed from the basket, cleaned and replaced, after which the frame may be returned to its position in the channels 29 and the operation of the machine resumed. Since the material forming the strainer is flexible, the suction of the air by the fan through the opening 44 will cause the walls of the screen to assume a position substantially parallel with the walls of the basket 31, while, if the fan is stopped, the walls of the strainer may relax until the fan is again set in motion when it will assume its working contour. This relaxation of the material of the strainer, or the changing of the contour, assists in relieving the strainer of any accumulation of dust and dirt.

It is evident that various changes may be resorted to in the form, construction and arrangement of the several parts without departing from the spirit and scope of my invention; hence, I do not intend to be limited to the specific details herein shown and described, except as they may be included in the claims.

What I claim is:

1. A dust collector for polishing machines comprising, a plurality of inlet compartments, an outlet compartment interposed between said inlet compartments, a settling compartment common to the inlet and outlet compartments, a screen removably secured in the outlet compartment, and a fan located in close proximity to the outlet compartment for exhausting the air from the compartments.

2. A dust collector for polishing machines comprising, a plurality of inlet compartments having restricted elongated outlets, an outlet compartment interposed between said inlet compartments, a settling compartment common to the inlet and outlet compartments, a screen removably secured in the outlet compartments, and a fan located in close proximity to the outlet compartment for exhausting the air from the compartments.

3. A dust collector for polishing machines comprising, a plurality of inlet compartments, an outlet compartment interposed between said inlet compartments, certain of the walls of each of said inlet and outlet compartments being inclined toward its outlet, a settling compartment common to the inlet and outlet compartments, a screen removably secured in the outlet compartment, and a fan located in close proximity to the outlet compartment for exhausting the air from the compartments.

4. A dust collector for polishing machines comprising, a chamber having angularly inclined partitions arranged to form a plurality of inlet compartments, an outlet compartment and a settling compartment, a screen removably secured in the outlet compartment, and a fan located above said chamber in close proximity to the outlet compartment for exhausting the air from the compartments.

5. A dust collector for polishing machines comprising, a chamber having angularly inclined partitions arranged to form a plurality of inlet compartments, an outlet compartment and a settling compartment, said inlet and outlet compartments having restricted outlets, a screen removably secured in the outlet compartment, and a fan located above said chamber in close proximity to the outlet compartment for exhausting the air from the compartments.

In testimony, that I claim the foregoing as my invention, I have signed my name this 20th day of October, 1922.

GUSTAVE A. LEIMAN.